Performance Measure Summary - Austin TX

There are several inventory and performance measures listed in the pages of this Urban Area Report for the years from 1982 to 2020. There is no single performance measure that experts agree "says it all". A few key points should be recognized by users of the Urban Mobility Scorecard data.

Use the trends - The multi-year performance measures are better indicators, in most cases, than any single year. Examining a few measures over many years reduces the chance that data variations or the estimating procedures may have caused a "spike" in any single year. (5 years is 5 times better than 1 year.)

Use several measures - Each performance measure illustrates a different element of congestion. (The view is more interesting from atop several measures.)

Compare to similar regions - Congestion analyses that compare areas with similar characteristics (for example, population, growth rate, road and public transportation system design) are usually more insightful than comparisons of different regions. (Los Angeles is not Peoria.)

Compare ranking changes and performance measure values - In some performance measures, a small change in the value may cause a significant change in rank from one year to the next. This is the case when there are several regions with nearly the same value. (15 hours is only 1 hour more than 14 hours.)

Consider the scope of improvement options - Any improvement project in a corridor within most of the regions will only have a modest effect on the regional congestion level. (To have an effect on areawide congestion, there must be significant change in the system or service.)

Performance Measures and Definition of Terms

Travel Time Index - A measure of congestion that focuses on each trip and each mile of travel. It is calculated as the ratio of travel time in the peak period to travel time in free-flow. A value of 1.30 indicates that a 20-minute free-flow trip takes 26 minutes in the peak.

Planning Time Index - A travel time reliability measure that represents the total travel time that should be planned for a trip. Computed with the 95th percentile travel time it represents the amount of time that should be planned for a commute trip to be late for only 1 day a month. If it is computed with the 80th percentile travel time it represents the amount of time that should be planned for a trip to be late for only 1 day a week. A PTI of 2.00 means that for a 20-minute trip in light traffic, 40 minutes should be planned.

Peak Commuters - Number of travelers who begin a trip during the morning or evening peak travel periods (6 to 10 a.m. and 3 to 7 p.m.). "Commuters" are private vehicle users unless specifically noted.

Annual Delay per Commuter - A yearly sum of all the per-trip delays for those persons who travel in the peak period (6 to 10 a.m. and 3 to 7 p.m.). This measure illustrates the effect of traffic slowdowns as well as the length of each trip.

Total Delay - The overall size of the congestion problem. Measured by the total travel time above that needed to complete a trip at free-flow speeds. The ranking of total delay usually follows the population ranking (larger regions usually have more delay).

Free-Flow Speeds - These values are derived from time periods with lighter traffic volumes in the INRIX speed database. They are used as the national comparison thresholds. Other speed thresholds may be appropriate for urban project evaluations or sub-region studies.

Excess Fuel Consumed - Increased fuel consumption due to travel in congested conditions rather than free-flow conditions.

Congestion Cost - Value of travel delay for 2020 (estimated at \$20.17 per hour of person travel and \$55.24 per hour of truck time) and excess fuel consumption estimated using state average cost per gallon.

Urban Area - The developed area (population density more than 1,000 persons per square mile) within a metropolitan region. The urban area boundaries change frequently (every year for most growing areas), so increases include both new growth and development that was previously in areas designated as rural.

Number of Rush Hours -Time when the road system might have congestion.

Annual Greenhouse Gases (CO2) Produced -Tons of CO2 produced from all vehicle travel.

Excess Greenhouse Gases (CO2) Produced due to Congestion-Tons of CO2 produced due to congested portion of travel. The excess CO2 is a subset of the total CO2 produced.

Inventory Measures	2020	2019	2018	2017	2016	2015
Urban Area Information						
Population (1000s)	1,680	1,680	1,650	1,620	1,580	1,540
Rank	31	31	32	32	34	34
Commuters (1000s)	893	893	869	785	765	725
Daily Vehicle-Miles of Travel (1000s)						
Freeway	13,877	16,800	16,069	15,552	15,813	15,334
Arterial Streets	12,845	15,551	15,084	14,037	14,174	13,435
Cost Components	12,010	10,000	10,001	- 1,027	- 1,5 7 1	
Value of Time (\$/hour)	20.17	19.14	18.71	18.12	17.91	17.69
Commercial Cost (\$/hour)	55.24	49.49	54.71	52.14	50.20	46.87
Gasoline (\$/gallon)	2.05	2.37	2.63	2.17	1.97	2.11
Diesel (\$\(\frac{9}{2}\)gallon)	2.51	2.73	2.99	2.31	2.10	2.36
System Performance	2020	2019	2018	2017	2016	2015
Congested Travel (% of peak VMT)				34.2		
Congested System (% of lane-miles)				24.0		
Congested Time (number of "Rush Hours")				4.9		
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	18,046	30,205	28,557	26,195	25,370	24,437
Rank	18	23	25	26	27	27
Fuel per Peak Auto Commuter (gallons)	15	25	25	25	24	24
Rank	9	21	20	20	23	20
Annual Delay						
Total Delay (1000s of person-hours)	48,435	81,069	75,274	69,187	64,709	61,262
Rank	18	22	24	27	27	27
Delay per Auto Commuter (pers-hrs)	41	68	65	66	63	61
Rank	7	12	16	14	16	16
Travel Time Index	1.13	1.35	1.35	1.34	1.34	1.33
Rank	6	8	7	11	11	11
Commuter Stress Index	1.14	1.51	1.48	1.45		
Rank	10	5	5	7		
Freeway Planning Time Index (95th Pctile)		2.16	1.94	2.15		
Rank		7	16	11		
Congestion Cost						
Total Cost (\$ millions)	1,077	1,732	1,630	1,470	1,353	1,265
Rank	18	22	24	27	27	27
Cost per Auto Commuter (\$)	945	1,520	1,471	1,467	1,402	1,320
Rank	6	14	14	13	13	13
Truck Congestion						
Annual Person-Hours of Delay (000)	2,154	3,545	3,322	2,964	2,813	2,663
Rank	20	25	26	26	27	2,003
Annual Gallons of Wasted Fuel (000)	3,883	6,391	5,860	5,429	5,259	5,065
Rank	20	25	25	27	27	28
Annual Congestion Cost (\$ million)	114	173	182	156	142	128
Rank	21	27	26	26	28	28
Annual Greenhouse Gases (CO2) Produced	21	21	20	20	20	20
Excess Due to Congestion (tons)	180,300	201 792		ı	1	
Rank		301,782				
	18	6 010 806				
Due to All Travel (tons)	4,128,923	6,910,896 29				
Rank	23	29				
Truck Annual Greenhouse Gases (CO2) Produced				ı	1	
Excess Due to Truck Congestion (tons)	45,152	74,317				
Rank	20	26				
			I			
Due to Truck Travel (tons) Rank	1,034,000	1,701,880 29				

^{*} Note: Zeroes in the table reflect values less than 0.5.

Inventory Measures	2014	2013	2012	2011	2010	2009
Urban Area Information						
Population (1000s)	1,500	1,480	1,460	1,410	1,370	1,300
Rank	34	34	34	35	36	37
Commuters (1000s)	705	712	719	711	689	655
Daily Vehicle-Miles of Travel (1000s)	, , , ,	,		, , , ,		
Freeway	13,936	12,849	12,510	12,650	12,274	11,960
Arterial Streets	12,022	10,805	10,680	11,004	10,677	10,854
Cost Components	12,022	10,003	10,000	11,004	10,077	10,034
Value of Time (\$/hour)	17.67	17.39	17.14	16.79	16.28	16.01
Commercial Cost (\$/hour)	44.82	41.23	39.66	44.62	42.50	41.83
Gasoline (\$/gallon)	3.12	3.37	3.33	3.29	2.56	2.13
Diesel (\$/gallon)	3.12	3.76	3.75	3.56	2.30	2.13
System Performance	2014	2013	2012	2011	2010	2009
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	23,541	23,053	22,329	21,190	20,163	18,988
Rank	27	28	28	32	32	32
Fuel per Peak Auto Commuter (gallons)	22	23	22	21	20	17
Rank	24	17	21	25	29	43
Annual Delay						
Total Delay (1000s of person-hours)	58,506	56,789	54,518	50,352	47,034	43,462
Rank	27	27	27	28	30	30
Delay per Auto Commuter (pers-hrs)	59	58	55	51	49	48
Rank	16	14	17	19	21	19
Travel Time Index	1.33	1.32	1.31	1.30	1.29	1.29
Rank	11	12	13	13	13	12
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	1,228	1,175	1,110	1,018	909	819
Rank	27	27	27	28	30	30
Cost per Auto Commuter (\$)	1,253	1,229	1,195	1,139	1,097	1,032
Rank	15	16	17	19	19	22
Truck Congestion						
Annual Person-Hours of Delay (000)	2,543	2,468	2,370	2,189	2,044	1,889
Rank	25,543	2,408	2,370	2,169	2,044	28
Annual Gallons of Wasted Fuel (000)	4,880	4,778	4,628	4,392	4,179	3,935
Rank	28	29	29	29	29	29
Annual Congestion Cost (\$ million)	123	113	105	107	93	83
Rank	28	26	26	27	28	29
	20	20	20	41	20	
Annual Greenhouse Gases (CO2) Produced				ı		
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced				ı	, ,	
Excess Due to Truck Congestion (tons)						
Rank						
Due to Truck Travel (tons)						
Rank			!!!		¹ I	li li

^{*} Note: Zeroes in the table reflect values less than 0.5.

Inventory Measures	2008	2007	2006	2005	2004	2003
Urban Area Information						
Population (1000s)	1,250	1,200	1,100	1,070	1,040	1,010
Rank	37	37	38	38	40	40
Commuters (1000s)	631	605	553	537	520	502
Daily Vehicle-Miles of Travel (1000s)						
Freeway	11,900	12,200	11,750	11,400	10,800	10,200
Arterial Streets	10,800	11,000	10,500	10,000	9,400	9,000
Cost Components						
Value of Time (\$/hour)	16.07	15.47	15.06	14.58	14.10	13.73
Commercial Cost (\$/hour)	40.77	39.30	37.88	36.51	35.19	33.92
Gasoline (\$/gallon)	3.36	2.92	2.55	2.23	1.83	1.45
Diesel (\$/gallon)	4.07	3.30	2.73	2.40	1.85	1.43
System Performance	2008	2007	2006	2005	2004	2003
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	19,751	19,556	18,072	16,964	16,001	14,763
Rank	32	31	32	35	36	36
Fuel per Peak Auto Commuter (gallons)	18	19	18	17	16	15
Rank	49	40	47	48	56	58
Annual Delay						
Total Delay (1000s of person-hours)	43,058	42,632	39,396	36,982	34,880	32,184
Rank	29	30	30	31	34	35
Delay per Auto Commuter (pers-hrs)	50	51	52	50	49	47
Rank	15	16	14	17	14	18
Travel Time Index	1.31	1.32	1.33	1.31	1.31	1.29
Rank	9	9	7	12	9	11
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	842	795	708	639	577	512
Rank	30	30	31	32	34	35
Cost per Auto Commuter (\$)	1,012	1,042	988	960	936	886
Rank	21	22	27	29	33	37
Truck Congestion						
Annual Person-Hours of Delay (000)	1,871	1,854	1,713	1,607	1,516	1,399
Rank	28	28	30	32	32	34
Annual Gallons of Wasted Fuel (000)	4,094	4,053	3,746	3,516	3,316	3,060
Rank	29	28	29	31	32	32
Annual Congestion Cost (\$ million) Rank	88 28	82 29	71 29	63 33	56 33	49 34
	26	29	29	33	33	34
Annual Greenhouse Gases (CO2) Produced				1	I	
Excess Due to Congestion (tons) Rank						
Nank Due to All Travel (tons)						
Rank						 -
Truck Annual Greenhouse Gases (CO2) Produced Excess Due to Truck Congestion (tons)				1	I	
Rank						
Nank Due to Truck Travel (tons)						
Rank						
IXMIN						

^{*} Note: Zeroes in the table reflect values less than 0.5.

Inventory Measures	2002	2001	2000	1999	1998	1997
Urban Area Information						
Population (1000s)	990	960	925	895	870	840
Rank	40	41	41	41	42	43
Commuters (1000s)	485	462	439	417	399	379
Daily Vehicle-Miles of Travel (1000s)						
Freeway	9,750	9,300	8,800	8,500	8,250	8,000
Arterial Streets	8,550	8,100	7,700	7,250	6,600	6,000
Cost Components						
Value of Time (\$/hour)	13.43	13.22	12.85	12.43	12.17	11.98
Commercial Cost (\$/hour)	32.69	31.51	30.38	29.28	28.89	28.50
Gasoline (\$/gallon)	1.32	1.46	1.47	1.07	1.01	1.12
Diesel (\$/gallon)	1.29	1.48	1.42	1.07	1.10	1.19
System Performance	2002	2001	2000	1999	1998	1997
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	13,778	13,008	11,697	10,883	9,788	8,858
Rank	37	37	40	40	40	40
Fuel per Peak Auto Commuter (gallons)	14	13	12	11	10	9
Rank	61	63	68	72	73	75
Annual Delay						
Total Delay (1000s of person-hours)	30,035	28,358	25,499	23,726	21,339	19,311
Rank	36	35	36	37	37	37
Delay per Auto Commuter (pers-hrs)	45	44	42	40	38	36
Rank	21	20	22	25	26	28
Travel Time Index	1.28	1.28	1.26	1.25	1.24	1.23
Rank	12	10	13	13	12	13
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	466	434	380	338	297	266
Rank	35	35	36	37	37	38
Cost per Auto Commuter (\$)	846	808	748	719	662	608
Rank	39	38	46	48	52	57
Truck Congestion						
Annual Person-Hours of Delay (000)	1,305	1,233	1,108	1,031	927	839
Rank	35	35	37	37	38	39
Annual Gallons of Wasted Fuel (000)	2,856	2,696	2,424	2,256	2,029	1,836
Rank	32	32	34	34	37	37
Annual Congestion Cost (\$ million)	43	40	35	30	27	24
Rank	36	35	37	37	38	39
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced						
Truck Annual Greenhouse Gases (CO2) Produced Excess Due to Truck Congestion (tons)						
Excess Due to Truck Congestion (tons) Rank		 	 	 	 	
Excess Due to Truck Congestion (tons)		 		 	 	

^{*} Note: Zeroes in the table reflect values less than 0.5.

Inventory Measures	1996	1995	1994	1993	1992	1991
Urban Area Information						
Population (1000s)	800	760	730	720	710	690
Rank	45	45	46	46	47	47
Commuters (1000s)	355	332	314	305	296	283
Daily Vehicle-Miles of Travel (1000s)						
Freeway	7,600	7,250	6,800	6,500	6,100	5,830
Arterial Streets	5,600	5,200	4,800	4,600	4,500	4,400
Cost Components	,	,	,		,	
Value of Time (\$/hour)	11.71	11.37	11.06	10.78	10.47	10.17
Commercial Cost (\$/hour)	28.12	27.75	27.38	27.02	26.66	26.30
Gasoline (\$/gallon)	1.21	1.14	1.03	1.10	1.09	1.12
Diesel (\$/gallon)	1.29	1.21	1.09	1.17	1.17	1.20
System Performance	1996	1995	1994	1993	1992	1991
						1//1
Congested Travel (% of lone miles)						
Congested System (% of lane-miles) Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed		,				
Total Fuel (1000 gallons)	7,838	6,725	6,037	5,570	5,086	4,655
Rank	42	43	45	46	45	46
Fuel per Peak Auto Commuter (gallons)	8	7	7	5	5	4
Rank	76	77	73	82	82	85
Annual Delay						
Total Delay (1000s of person-hours)	17,088	14,661	13,160	12,144	11,088	10,149
Rank	40	43	42	44	45	45
Delay per Auto Commuter (pers-hrs)	34	31	29	28	26	25
Rank	33	41	42	40	41	39
Travel Time Index	1.21	1.19	1.18	1.17	1.16	1.15
Rank	19	23	23	23	23	24
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	231	193	168	152	135	120
Rank	40	43	42	43	45	45
Cost per Auto Commuter (\$)	550	487	450	427	404	378
Rank	61	68	72	72	68	70
Truck Congestion						
Annual Person-Hours of Delay (000)	743	638	572	528	482	441
Rank	40	42	43	43	43	44
Annual Gallons of Wasted Fuel (000)	1,625	1,394	1,251	1,155	1,054	965
Rank	39	43	45	43	43	43
Annual Congestion Cost (\$ million)	22	18	16	15	13	12
Rank	39	43	42	42	44	42
Annual Greenhouse Gases (CO2) Produced						
Excess Due to Congestion (tons)						
Rank					<u></u>	
Due to All Travel (tons)				<u></u>	<u></u>	
Rank						
Truck Annual Greenhouse Gases (CO2) Produced				1	I	
Excess Due to Truck Congestion (tons)						
Rank						
Due to Truck Travel (tons) Rank						

^{*} Note: Zeroes in the table reflect values less than 0.5.

Inventory Measures	1990	1989	1988	1987	1986	1985
Urban Area Information						
Population (1000s)	660	625	615	580	565	560
Rank	49	50	49	51	51	51
Commuters (1000s)	266	250	244	229	221	217
Daily Vehicle-Miles of Travel (1000s)						
Freeway	5,320	4,900	4,555	4,375	4,550	4,200
Arterial Streets	4,250	4,100	3,950	3,800	3,650	3,500
	7,230	7,100	3,730	3,000	3,030	3,300
Cost Components	9.75	9.25	8.83	8.48	8.18	8.03
Value of Time (\$/hour) Commercial Cost (\$/hour)	25.95	25.60	25.26	24.93	24.60	24.27
Gasoline (\$/gallon)	1.04	1.07	0.99	0.99	0.97	1.27
Diesel (\$/gallon)	1.04	1.07	0.97	0.99	0.97	1.24
System Performance	1990	1989	1988	1987	1986	1985
Congested Travel (% of peak VMT)						
Congested System (% of lane-miles)						
Congested Time (number of "Rush Hours")						
Annual Excess Fuel Consumed						
Total Fuel (1000 gallons)	4,249	3,727	3,515	3,358	3,180	2,850
Rank	47	48	45	42	42	44
Fuel per Peak Auto Commuter (gallons)	5	3	3	3	3	3
Rank	72	85	81	80	74	66
Annual Delay						
Total Delay (1000s of person-hours)	9,263	8,123	7,663	7,321	6,932	6,212
Rank	44	45	43	42	42	42
Delay per Auto Commuter (pers-hrs)	24	22	21	22	21	19
Rank	39	40	38	28	26	30
Travel Time Index	1.15	1.14	1.13	1.14	1.13	1.12
Rank	22	23	23	20	20	21
Commuter Stress Index						
Rank						
Freeway Planning Time Index (95th Pctile)						
Rank						
Congestion Cost						
Total Cost (\$ millions)	105	88	80	73	67	60
Rank	44	45	43	42	42	42
Cost per Auto Commuter (\$)	360	333	332	329	328	299
Rank	69	71	69	64	62	63
Truck Congestion	0,	,1	0,	0.1	02	
Annual Person-Hours of Delay (000)	403	353	333	318	301	270
Rank	403	44	44	44	43	44
Annual Gallons of Wasted Fuel (000)	881	773	728	696	659	591
Rank	43	44	43	43	41	391 41
Annual Congestion Cost (\$ million)	11	9	9	8	8	7
Rank	41	43	42	42	38	41
	71	43	74	74	30	71
Annual Greenhouse Gases (CO2) Produced				ı	1	
Excess Due to Congestion (tons)						
Rank						
Due to All Travel (tons)						
Rank						
Truck Annual Greenhouse Gases (CO2) Produced					1	
Excess Due to Truck Congestion (tons)						
Rank						
B	1					
Due to Truck Travel (tons) Rank						

^{*} Note: Zeroes in the table reflect values less than 0.5.

Inventory Measures	1984	1983	1982
Urban Area Information			
Population (1000s)	545	520	495
Rank	51	53	57
Commuters (1000s)	210	199	187
Daily Vehicle-Miles of Travel (1000s)			
Freeway	3,730	3,615	3,000
Arterial Streets	3,400	3,200	3,000
Cost Components			
Value of Time (\$/hour)	7.75	7.43	7.20
Commercial Cost (\$/hour)	23.94	23.63	23.31
Gasoline (\$/gallon)	1.28	1.31	1.37
Diesel (\$/gallon)	1.25	1.28	1.34
System Performance	1984	1983	1982
Congested Travel (% of peak VMT)			
Congested System (% of lane-miles)			
Congested Time (number of "Rush Hours")			
Annual Excess Fuel Consumed			
Total Fuel (1000 gallons)	2,677	2,433	2,065
Rank	41	41	2,003
Fuel per Peak Auto Commuter (gallons)	3	2	2
Rank	61	69	55
Annual Delay	01	07	
Total Delay (1000s of person-hours)	5,836	5,304	4,500
Rank	3,830	3,304	4,300
Delay per Auto Commuter (pers-hrs)	19	18	16
Rank	27	25	28
		-	
Travel Time Index	1.12	1.11	1.10
Rank	20	18	20
Commuter Stress Index			
Rank			
Freeway Planning Time Index (95th Pctile)			
Rank			
Congestion Cost		40	40
Total Cost (\$ millions)	55	48	40
Rank	42	42	45
Cost per Auto Commuter (\$)	292	274	238
Rank	60	58	64
Truck Congestion			
Annual Person-Hours of Delay (000)	254	231	196
Rank	43	44	44
Annual Gallons of Wasted Fuel (000)	555	504	428
Rank	40	41	43
Annual Congestion Cost (\$ million)	6	6	5
Rank	42	37	40
Annual Greenhouse Gases (CO2) Produced			
Excess Due to Congestion (tons)			
Rank			
Due to All Travel (tons)			
Rank			
Truck Annual Greenhouse Gases (CO2) Produced			
Excess Due to Truck Congestion (tons)			
Rank			
Due to Truck Travel (tons)			
Rank			

^{*} Note: Zeroes in the table reflect values less than 0.5.